

What is claimed is:

- 1 1. A double action push switch comprising:
 - 2 a housing formed with a cavity therein;
 - 3 a first terminal, a second terminal, and a third terminal fixed in the housing, respectively
 - 4 having contact points exposed in an inner bottom face of the cavity;
 - 5 a first plate member and a second plate member placed side by side inside the cavity, both
 - 6 having a domed shape with centers that bulge away from the inner bottom face of the cavity, said
 - 7 first plate member having a center and a peripheral portion respectively abutting the contact points
 - 8 of said first and third terminals, and said second plate member having a center and a peripheral
 - 9 portion respectively abutting the contact points of said second and third terminals; and
 - 10 a key top having an operating portion which is pressed for a double action switching
 - 11 operation and a first pressing portion and a second pressing portion for respectively pressing the
 - 12 centers of said first and second plate members for causing an inversion thereof, said operating
 - 13 portion being positioned at such a location that a first operating load on said operating portion,
 - 14 when a pressing point of said first pressing portion on said first plate member is acting as a fulcrum
 - 15 and moments on said key top are balanced, is not equal to a second operating load on said
 - 16 operating portion, when a pressing point of said second pressing portion on said second plate
 - 17 member is acting as a fulcrum and moments on said key top are balanced, wherein
 - 18 a first pressing force applied to said operating portion causes the inversion of the center of
 - 19 one of said first plate member and said second plate member for achieving a first electrical
 - 20 connection, and a second pressing force applied to said operating portion causes the inversion of
 - 21 the center of the other one of said first plate member and said second plate member for achieving a
 - 22 second electrical connection.

1 2. The double action push switch according to claim 1, wherein said first, second, and third
2 terminals comprise respective connecting portions protruding side by side from said housing in a
3 direction substantially the same as a direction in which said operating portion of the key top is
4 pressed.

1 3. The double action push switch according to claim 2, wherein said housing comprises
2 stoppers which abut a substrate face at an edge portion of a recess formed in a printed circuit board
3 to which said housing is mounted.

1 4. The double action push switch according to claim 1, wherein said first plate member and
2 said second plate member have identical load characteristics, and said first and second operating
3 loads are applied on a point offset from a mid point between said pressing points of said first and
4 second pressing portions on said first and second plate members.

1 5. The double action push switch according to claim 4, wherein said first, second, and third
2 terminals comprise respective connecting portions protruding side by side from said housing in a
3 direction substantially the same as a direction in which said operating portion of the key top is
4 pressed.

1 6. The double action push switch according to claim 5, wherein said housing comprises
2 stoppers which abut a substrate face at an edge portion of a recess formed in a printed circuit board
3 to which said housing is mounted.

1 7. The double action push switch according to claim 1, wherein said first plate member and
2 said second plate member have different load characteristics, and said first and second operating
3 loads are applied on a point coinciding with a mid point between said pressing points of said first
4 and second pressing portions on said first and second plate members.

1 8. The double action push switch according to claim 7, wherein said first, second, and third
2 terminals comprise respective connecting portions protruding side by side from said housing in a
3 direction substantially the same as a direction in which said operating portion of the key top is
4 pressed.

1 9. The double action push switch according to claim 8, wherein said housing comprises
2 stoppers which abut a substrate face at an edge portion of a recess formed in a printed circuit board
3 to which said housing is mounted.

1 10. The double action push switch according to claim 1, wherein said first plate member and
2 said second plate member have different load characteristics, and said first and second operating
3 loads are applied on a point offset from a mid point between said pressing points of said first and
4 second pressing portions on said first and second plate members.

1 11. The double action push switch according to claim 10, wherein said first, second, and
2 third terminals comprise respective connecting portions protruding side by side from said housing
3 in a direction substantially the same as a direction in which said operating portion of the key top is
4 pressed.

1 12. The double action push switch according to claim 11, wherein said housing comprises
2 stoppers which abut a substrate face at an edge portion of a recess formed in a printed circuit board
3 to which said housing is mounted.

1 13. A double action push switch, comprising
2 a first push switch and a second push switch mounted side by side on a printed circuit board,
3 said first and second push switches respectively comprising a first key top and a second key top,
4 and a first plate member and a second plate member of a domed shape with centers that bulge
5 towards said first and second key tops; and
6 an outer key top disposed opposite said first and second key tops, said outer key top
7 comprising an operating portion protruded on one side of said outer key top and a first pressing
8 portion and a second pressing portion protruded on the other side of said outer key top, wherein
9 a pressing force applied to said operating portion of said outer key top causes said first and
10 second pressing portions of said outer key top to press said first and second key tops, thereby
11 causing an inversion of one of said first plate member and said second plate member for achieving
12 a first electrical connection, and an inversion of the other one of said first plate member and said
13 second plate member for achieving a second electrical connection, and
14 said operating portion of said outer key top is positioned at such a location that a first
15 operating load on said operating portion, when a pressing point of said first pressing portion on
16 said first key top is acting as a fulcrum and moments on said outer key top are balanced, is not
17 equal to a second operating load on said operating portion, when a pressing point of said second
18 pressing portion on said second key top is acting as a fulcrum and moments on said outer key top
19 are balanced.

1 14. The double action push switch according to claim 13, wherein said first and second push
2 switches are mounted on the printed circuit board side by side such that said first and second key
3 tops are pressed in a direction parallel to a substrate face of the printed circuit board.

1 15. The double action push switch according to claim 13, wherein said first plate member
2 and said second plate member have identical load characteristics, and said first and second
3 operating loads are applied on a point offset from a mid point between said pressing points of said
4 first and second pressing portions on said first and second key tops.

1 16. The double action push switch according to claim 15, wherein said first and second push
2 switches are mounted on the printed circuit board side by side such that said first and second key
3 tops are pressed in a direction parallel to a substrate face of the printed circuit board.

1 17. The double action push switch according to claim 13, wherein said first plate member
2 and said second plate member have different load characteristics, and said first and second
3 operating loads are applied on a point coinciding with a mid point between said pressing points of
4 said first and second pressing portions on said first and second key tops.

1 18. The double action push switch according to claim 17, wherein said first and second push
2 switches are mounted on the printed circuit board side by side such that said first and second key
3 tops are pressed in a direction parallel to a substrate face of the printed circuit board.

1 19. The double action push switch according to claim 13, wherein said first plate member

2 and said second plate member have different load characteristics, and said first and second
3 operating loads are applied on a point offset from a mid point between said pressing points of said
4 first and second pressing portions on said first and second key tops.

1 20. The double action push switch according to claim 19, wherein said first and second push
2 switches are mounted on the printed circuit board side by side such that said first and second key
3 tops are pressed in a direction parallel to a substrate face of the printed circuit board.